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ABSTRACT

To improve vocational education programs in agriculture, occupational information on a common core of basic skills within the occupational area of the forage producer is presented in the revised task inventory survey. The purpose of the occupational survey was to identify a common core of basic skills which are performed and are essential for success in the occupation. Objectives were accomplished by constructing an initial task inventory to identify duty areas and task statements for the occupation. The initial task inventory was reviewed by consultants in the field, and 247 tasks were identified. A random sample of 62 forage producers based on the 1974-75 Ohio Young Farmers Association, Inc. was obtained. Data were collected utilizing a questionnaire. Twenty questionnaires were returned of which 17 were usable. A compilation of basic sample background information is presented on the size of the forage enterprise, years as a forage producer, and preparation as a forage producer. A compilation of duty areas of work performed and work essential for the occupation is given. Percentage performance by incumbent workers and the average level of importance of specific task statements are presented in tabular form. (Author/EC)

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DETERMINATION OF A COMMON CORE OF BASIC SKILLS IN AGRIBUSINESS AND NATURAL RESOURCES

# An Emperical Determination Of Tasks Essential To Successful Performance As A Forage Producer

DEPARTMENT OF AGRICULTURAL EDUCATION
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# AN EMPERICAL DETERMINATION OF TASKS ESSENTIAL TO SUCCESSFUL PERFORMANCE AS A FORAGE PRODUCER

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## FOREWORD

The Department of Agricultural Education at The Ohio State University is involved in a major programmatic effort to improve the curricula in education programs in agriculture. One product in this effort is this report of the forage producer task inventory survey. The data reported were collected as part of a more comprehensive thrust designed to develop a common core of basic skills in agribusiness and natural resources.

It is hoped that the revised task inventory contained in this report will be useful to curriculum developers working for improved occupational relevance in schools. Twenty-seven additional inventories in other occupational areas are also reported from this project.

The profession owes its thanks to J. Rick Byrd, graduate research associate, for his work in preparing this report. Special appreciation is also expressed to Richard Hummel, Executive Vice-President and Treasurer, Ohio Young Farmers Association, Inc. and Area Supervisor of Vocational Education in Agriculture in Ohio, for his input and help in securing the cooperation of forage producers across Ohio.

J. David McCracken
Project Director

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# INTRODUCTION

Occupational information is needed to develop and revise vocational and technical education curricula. Teachers and curriculum developers generally determine which skills might be taught in a program based upon teacher expertise, advisory committee input, informal and formal community surveys, and/or task inventories.

The Agricultural Education Department at The Ohio State University has utilized and revised a system for obtaining and using occupational information as an effective aid in planning, improving, and updating occupational education curricula. This report presents the results of a survey of the occupation, forage producer. The information contained herein may be used by curriculum development specialists, teachers, local and state administrators, and others involved in planning and conducting vocational and technical programs in agriculture.

## Purpose and Objectives

The major purpose of the occupational survey was to identify the skills which are performed and essential for success as a forage producer. The specific objectives of this survey were as follows:

1. Develop and validate an initial task inventory for the forage producer.
2. Identify the specific tasks performed by the forage producer.
3. Determine the relative importance of the specific tasks to successful employment as a forage producer.

## Definition of the Occupational Area

The forage producer usually produces forage crops for consumption by livestock kept on the farm. The particular forage crops grown on the farm will depend on the locality. The specific duties performed by the forage producer will depend on the type of forage crops grown. In general, the specific duties performed in relation to the forage enterprise may include testing soil and plant tissues; fertilizing forage crops; controlling insects and diseases; controlling weeds; establishing forage crops; harvesting forages; storing forages; and marketing forages.

The forage producer also has a large investment in buildings, equipment, and machinery. The forage producer will operate machinery and equipment and service and maintain such equipment and machinery. The forage producer will also be involved in minor building construction and repair and maintain the buildings and structures. Additionally, he will perform tasks related to the specific livestock enterprises kept on the farm.

# METHODOLOGY

Objectives were accomplished by constructing an initial task inventory, validating the initial inventory, selecting a sample of workers, collecting data, and analyzing data.

## Initial Task Inventory

Duty areas and task statements for the forage producer were identified by searching existing task lists, job descriptions, curriculum guides, and reference publications. Additionally,

contacts with several forage specialists at The Ohio State University aided in clarifying the specific responsibilities of the forage producer. All the tasks that the project staff thought to be performed were assembled into one composite list.

The initial tasks were grouped into functional areas called "Duties".

After the task statements were grouped under the proper duty areas, each task statement was reviewed for brevity, clarity, and consistency. In all, 327 task statements were included in the initial task inventory.

## Initial Inventory Validation

After the initial task inventory was constructed, it was reviewed by ten farmers.

The farmers were asked to respond to the initial task list inventory by performing the following activities:

1. Indicate whether any of the tasks listed were not appropriate.

2. Add any additional tasks they believed were performed by the forage producer.

3. Make changes in the wording of tasks to help add clarity to the statements.

The comments from the ten farmers were pooled and needed revisions were made. One duty area was eliminated and one new duty area was added. The duty areas relating to the overall management of a farm which were not unique to the forage enterprise but common to several production agriculture occupations were removed from the forage producer questionnaire and incorporated into a separate farm manager (owner-operator) questionnaire.

As a result of the initial task inventory review process, 247 tasks were identified.

## Worker Sample Selection

An attempt was made to survey forage producers from all areas of the state with various size forage enterprises. A sample of 62 forage producers was obtained from the 1974-75 directory of the Ohio Young Farmers Association, Inc. using a multi-stage random sampling approach. The stages used in the sampling approach were local Ohio Young Farmer Association, Inc. chapter and individual member.

## Data Collection

A packet of materials was sent to the randomly selected forage producers. The packet of materials included:

1. A cover letter from the Ohio Young Farmers Association, Inc.
2. A questionnaire printed on yellow.
3. A stamped and self-addressed return envelope.

The forage producer was instructed to complete the questionnaire and return it in the stamped self-addressed return envelope by the date specified in the cover letter.

A follow-up of non-respondents consisted of mailing a packet of materials two weeks after the initial mailing. The follow-up consisted of a packet of materials identical to the initial packet except that a cover letter on Ohio State University stationery replaced the cover letter on Ohio Young Farmers Association, Inc. stationery.

## Data Analysis

The 20 questionnaires which were returned were checked for completeness and accuracy by the project staff. Information from the 17 usable responses was coded on Fortran coding sheets for key punching. In addition to coding appropriate respondent background information, each specific task statement was coded as to whether it was performed (1 = Task performed by respondent; blank = Task not performed by respondent) and the level of importance of the task (3 = Essential; 2 = Useful; 1 = Not Important). The information was keypunched on IBM cards and verified by personnel at the Instruction and Research Computer Center at The Ohio State University.

The data was analyzed using the SOUPAC computer program and the facilities of the Instruction and Research Computer Center. Consultant assistance for analyzing the data was provided by personnel at The Center for Vocational Education. The SOUPAC computer analysis resulted in the computation of relative frequencies, means, and rankings for each task statement. The results of the computer analyses were printed in tabular form for ease of interpretation.

## FINDINGS

Objectives of the study resulted in the compilation of basic sample background information, the determination of tasks

performed by the forage producer, and the identification of tasks essential to successful performance as a forage producer.

## Description of the Sample

Information regarding the performance of tasks and the importance of the tasks to successful employment as a forage producer was obtained from forage producers across Ohio.

### Response to the Survey

A total of 62 questionnaires were mailed and 20 replies were received. This represented a 32.2% rate of return. The response to the questionnaire is summarized in TABLE I.

TABLE I

FORAGE PRODUCER RESPONSE TO THE QUESTIONNAIRE

| | N | Percent of All Farmers In the Survey |
|---|---|---|
| Forage Producers in Survey | 62 | 100.0 |
| Total Returns | 20 | 32.2 |
| Usable Returns | 17 | 29.0 |
| Unusable Returns | 3 | 3.2 |
| Nonrespondents | 42 | 67.8 |

### Size of Forage Enterprise

Forage producers from various size forage operations were included in the study. The number of acres in forage crops was used as an index to assess the size of the forage operation. Of the 20 questionnaires received, 17 included information regarding the size of the forage enterprise. TABLE II summarizes the responses to the question, "How many acres do you currently have in forage production?" Seven forage producers or 41.2% operated farms with 1-80 acres in forage crops. Six forage producers or 35.3% operated farms with 81-110 acres in forage crops. Four forage producers or 23.5% operated farms with 111 or more acres in forage crops. The number of acres in forage crops ranged from 50-600 acres. The mean number of acres in forage production per farm was 113.0 acres.

TABLE II

SIZE OF OPERATION
(Acres in Forage Production)

| Acres | N | Percent of Respondents |
|---|---|---|
| 1-80 | 7 | 41.2 |
| 81-110 | 6 | 35.3 |
| 111 or more | 4 | 23.5 |
| Total | 17 | 100.0 |

$\bar{X}$ number of acres in forage production = 113.2

Years as a Forage Producer

Forage producers with varying amounts of experience in forage production were included in the study. TABLE III summarizes the responses to the question, "How many total years have you been a forage producer?" Six forage producers or 35.3% had from 11-15 years experience in forage production. Five forage producers or 29.4% had from six to ten years experience in forage production. The total years of experience in producing forages ranged from 4-26 years. Forage producers had an average of 13.3 years of experience in forage production.

Preparation as a Forage Producer

Forage producers obtained training from various sources. TABLE IV summarizes their responses to the question, "Where did you receive your training in forage production?" Seventeen forage producers or 100% indicated they received training on-the-job. Thirteen forage producers or 76.5% indicated they attended a high school program and received training in forage production. Nine forage producers or 52.9% indicated they had received training in forage production by attending adult education programs.

Duty Areas of Work Performed by the Forage Producer

The 247 tasks were grouped under 15 duty areas. Each respondent indicated whether he performed the specific task as a forage producer. The percentages of respondents performing each task were averaged for all tasks under each duty area. The mean

TABLE III

TOTAL AMOUNT OF WORK EXPERIENCE IN FORAGE PRODUCTION

| Years | N | Percent of Respondents |
|---|---|---|
| 1-5 | 2 | 11.8 |
| 6-10 | 5 | 29.4 |
| 11-15 | 6 | 35.3 |
| 16 or more | 4 | 23.5 |
| Total | 17 | 100.0 |

$\bar{X}$ years as a forage producer = 13.3

TABLE IV

SOURCE OF TRAINING RECEIVED AS A FORAGE PRODUCER

| Source | N | Percent of All Farmers In the Survey |
|---|---|---|
| On-The-Job | 17 | 100.0 |
| High School Program | 13 | 76.5 |
| College/university Program | 4 | 23.5 |
| Adult Education Program | 9 | 52.9 |
| Other | 6 | 35.3 |

percentage of forage producers who performed specific tasks in specified duty areas is presented in TABLE V.

Duty areas of work in which 50% or more of the forage producers performed the tasks were:

1. Following Legal Practices in Forage Production
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Fertilizing Forage Crops
6. Operating Powered Equipment and Vehicles
7. Controlling Insects and Diseases

8. Controlling Weeds
9. Constructing and Maintaining Forage Operations Buildings and Structures
10. Assembling, Adjusting, and Installing Forage Operations Equipment
11. Establishing Forage Crops
12. Harvesting Forage Crops
13. Storing Forage Crops

## Duty Areas of Work Essential for Successful Performance as a Forage Producer

A level of importance rating was obtained for each task. The respondent could rate the task as essential, useful, or not important for successful performance as a forage producer. A ranking of essential was assigned a numerical rating of "3", useful a numerical rating of "2", and not important a numerical rating of "1". The level of importance ratings for each task were averaged for all tasks under each duty area. The average level of importance ratings for the specific tasks in the specified duty areas are presented in TABLE V.

Duty areas of work which received a 2.0 or higher level of importance rating by incumbent workers were:

1. Following Legal Practices in Forage Production
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Testing Soil and Plant Tissue
6. Fertilizing Forage Crops
7. Operating Powered Equipment and Vehicles
8. Controlling Insects and Diseases
9. Controlling Weeds
10. Constructing and Maintaining Forage Operations Buildings and Structures
11. Assembling, Adjusting, and Installing Forage Operations Equipment
12. Establishing Forage Crops
13. Harvesting Forage Crops

## Percentage Performance and Level of Importance Ratings of Specific Tasks

The percentage performance by incumbent workers and the level of importance for each specific task is also presented in TABLE V.

It is recommended that the results for each specific task

be examined by educators and others who are developing educational programs to determine curriculum content for preparing forage producers. Specific tasks with a high level of performance and a high level of importance rating should be given more emphasis in the educational program than specific tasks with a low level of performance and a low level of importance rating.

TABLE V

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE* OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Following Legal Practices in Forage Production | | |
| Follow laws relating to chemical use | 88 | 2.5 |
| Follow laws regarding application of chemicals near specific locations | 76 | 2.4 |
| Identify government regulations regarding marketing of forage products | 29 | 1.9 |
| Mean Rating | 64.3 | 2.3 |
| Following General Safety Precautions | | |
| Follow safe work habits | 96 | 2.7 |
| Identify potential safety hazards | 87 | 2.7 |
| Store chemicals | 87 | 2.8 |
| Use fire extinguishers | 78 | 2.7 |
| Wear appropriate protective clothing | 65 | 2.4 |
| Ventilate work areas | 71 | 2.4 |
| Interpret information on labels and signs | 87 | 2.8 |
| Use proper lifting and carrying methods | 87 | 2.5 |
| Store inflammable materials | 81 | 2.6 |
| Wear appropriate work clothing | 81 | 2.5 |
| Destroy chemical containers | 62 | 2.3 |
| Adjust safety devices | 81 | 2.6 |
| Install safety devices | 71 | 2.5 |
| Determine when climatic conditions provide unsafe work situations | 68 | 2.4 |
| Correct potential safety hazards | 84 | 2.6 |
| Remove debris from work areas | 58 | 2.1 |
| Use electrical connectors and safety devices | 75 | 2.6 |
| Dispose of excess chemicals | 71 | 2.3 |
| Clean up chemical spills | 75 | 2.4 |
| Recognize symptoms of injury or poison from chemicals | 65 | 2.8 |
| Mean Rating | 76.5 | 2.5 |
| Maintaining Equipment and Vehicles | | |
| Add coolant to radiators | 94 | 2.6 |

*Average rating of importance may range from 1-3 with 3 being the highest

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Add oil to equipment | 100 | 2.8 |
| Adjust carburetors | 64 | 2.2 |
| Adjust clutch pedal free travel | 88 | 2.5 |
| Bleed diesel fuel system | 76 | 2.2 |
| Change oil and oil filters | 100 | 2.7 |
| Change thermostats | 64 | 2.2 |
| Clean debris from equipment | 93 | 2.5 |
| Grease equipment | 100 | 2.8 |
| Inflate tires | 100 | 2.4 |
| Inspect cooling system for leaks | 88 | 2.3 |
| Install and adjust belts | 100 | 2.5 |
| Install and adjust chains | 100 | 2.5 |
| Install and service battery | 100 | 2.4 |
| Interpret general maintenance instructions in equipment operator's manuals | 94 | 2.3 |
| Remove equipment from storage | 82 | 2.0 |
| Repack bearings | 88 | 2.0 |
| Replace and adjust spark plugs | 82 | 2.1 |
| Replace bearings and seals | 94 | 2.3 |
| Replace diesel fuel nozzles | 47 | 1.9 |
| Replace spark plug wires | 76 | 2.0 |
| Replace radiator hoses | 88 | 2.1 |
| Replace universal joints | 70 | 1.9 |
| Service air cleaners | 94 | 2.4 |
| Service fuel strainer, fuel filters, and sediment bowl on gas fuel system | 88 | 2.2 |
| Time engine | 35 | 2.1 |
| Prepare equipment for storage | 64 | 2.2 |
| Mean Rating | 84.0 | 2.3 |
| **Using and Maintaining Hand and Power Tools** | | |
| Adjust tools | 64 | 2.1 |
| Clean tools | 70 | 2.1 |
| Identify tools | 58 | 2.1 |
| Interpret tool operation instructions | 64 | 2.1 |
| Recondition tools | 47 | 1.9 |
| Select tools for specific jobs | 70 | 2.1 |
| Sharpen tools | 82 | 2.1 |

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Store tools | 88 | 2.2 |
| Use hand tools safely | 82 | 2.2 |
| Use power tools safely | 88 | 2.4 |
| Set up tools | 58 | 1.9 |
| Mean Rating | 70.1 | 2.1 |
| **Testing Soil and Plant Tissue** | | |
| Interpret plant tissue test results | 35 | 2.3 |
| Interpret soil test results and recommendations | 88 | 2.4 |
| Prepare forms to submit with plant tissue | 35 | 1.9 |
| Prepare forms to submit with soil sample | 58 | 2.2 |
| Prepare plant tissues to be submitted | 11 | 1.9 |
| Prepare soil to be submitted | 58 | 2.4 |
| Take representative soil sample | 64 | 2.6 |
| Mean Rating | 49.9 | 2.2 |
| **Fertilizing Forage Crops** | | |
| Calculate estimated costs of fertilizer and lime needed | 77 | 2.4 |
| Determine amount of fertilizer and lime to apply | 72 | 2.7 |
| Determine kind of fertilizer and lime to apply | 72 | 2.7 |
| Determine when to apply fertilizer and lime | 72 | 2.4 |
| Evaluate affect leaching and placement have on nutrient availability | 44 | 2.2 |
| Evaluate influence soil pH has on nutrient availability | 38 | 2.2 |
| Identify function of lime in crop production | 38 | 2.1 |
| Identify function of major nutrients in crop production | 33 | 2.0 |
| Identify function of micro nutrients in crop production | 22 | 2.2 |
| Identify nutrient deficiency symptoms in crops | 44 | 2.1 |
| Use soil test results to plan fertility programs | 72 | 2.3 |
| Interpret labels on fertilizer bags | 77 | 2.3 |
| Apply fertilizers in liquid form | 33 | 1.7 |
| Apply fertilizers in dry form | 88 | 1.9 |
| Mix fertilizer solutions | 11 | 1.6 |
| Interpret manufacturer's fertilization rate charts | 55 | 2.3 |
| Evaluate influence nutrients have on plant growth | 27 | 2.1 |
| Determine the nutrient requirements of crops | 38 | 2.3 |

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Select proper method to apply fertilizer | 72 | 2.3 |
| Evaluate factors that influence effectiveness of fertilizers | 44 | 2.2 |
| Calibrate fertilizer equipment | 88 | 2.4 |
| Adjust rates of fertilizer application for specific conditions | 77 | 2.5 |
| Recognize signs of fertilizer injury | 66 | 2.2 |
| Transfer $NH_3$ from nurse tank to applicator | 66 | 2.1 |
| Transfer liquid fertilizer from nurse tank | 33 | 1.9 |
| Identify factors that influence fertilizer requirements | 50 | 1.8 |
| Mean Rating | 54.2 | 2.2 |
| **Operating Powered Equipment and Vehicles** | | |
| Interpret gauge readings on equipment | 94 | 2.7 |
| Operate equipment and vehicles on public highways | 100 | 2.5 |
| Add wheel and front end weights | 100 | 2.2 |
| Adjust equipment safety shields | 94 | 2.6 |
| Connect front end operated equipment | 66 | 2.1 |
| Connect hydraulic systems and hydraulic operated equipment | 100 | 2.5 |
| Correct potential equipment safety hazards | 88 | 2.6 |
| Connect 3-point hitch equipment | 88 | 2.4 |
| Hitch towed equipment | 83 | 2.2 |
| Identify equipment safety hazards | 66 | 2.2 |
| Install safety shields and safety devices | 77 | 2.3 |
| Interpret hand operating signals | 58 | 1.9 |
| Interpret safety and operating instructions in operator's manuals | 88 | 2.2 |
| Interpret safety symbols on equipment | 88 | 2.4 |
| Operate equipment under field conditions | 100 | 2.6 |
| Refuel power units | 100 | 2.4 |
| Use appropriate equipment and vehicles for specific jobs | 100 | 2.4 |
| Mean Rating | 87.6 | 2.4 |
| **Controlling Insects and Diseases** | | |
| Apply chemicals in liquid form | 52 | 1.9 |

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Apply chemicals in dust form | 29 | 1.9 |
| Determine amount of chemical to apply | 58 | 2.5 |
| Determine when to apply chemicals | 58 | 2.5 |
| Evaluate influence of diseases and pests on crop production | 52 | 2.1 |
| Evaluate life cycle of insects to determine appropriate control procedures | 47 | 2.3 |
| Identify common diseases | 64 | 2.2 |
| Identify common insects | 70 | 2.2 |
| Identify damage caused by insects and diseases | 70 | 2.2 |
| Identify disease and insect resistant varieties to plant | 52 | 2.1 |
| Identify various means by which disease and insects are spread | 58 | 2.1 |
| Mix chemicals | 52 | 1.9 |
| Select appropriate chemicals to control various insect pests and diseases | 47 | 2.2 |
| Use appropriate method to apply chemicals | 58 | 2.2 |
| Use mechanical and cultural means to control insects and diseases | 35 | 1.8 |
| Inspect crops to determine when controls are needed | 58 | 2.5 |
| Distinguish between harmful and beneficial insects | 52 | 2.2 |
| Contact appropriate insect and disease specialists | 23 | 1.9 |
| Interpret chemical labels | 52 | 2.2 |
| Destroy plant residues | 23 | 1.4 |
| Identify factors that influence chemical effectiveness | 47 | 2.2 |
| Calculate cost of controls | 58 | 2.2 |
| Recognize chemical injury to plants | 47 | 2.2 |
| Select correct field travel and PTO speed for applying chemicals | 76 | 2.5 |
| Calibrate application equipment | 76 | 2.5 |
| Select correct type and size nozzles and tips | 64 | 2.4 |
| Adjust applicating equipment | 70 | 2.4 |
| Select proper application pressure | 70 | 2.5 |
| Determine total amount of chemical needed | 70 | 2.1 |
| Interpret chemical compatability charts | 41 | 1.8 |
| Mean Rating | 54.3 | 2.3 |
| Controlling Weeds | | |
| Apply chemicals to control weeds | 70 | 2.3 |

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Evaluate influence weeds have on crops | 58 | 2.2 |
| Identify common weeds | 82 | 2.2 |
| Inspect fields to determine when weed infestations require control | 88 | 2.2 |
| Clip fields and rotate crops to control weeds | 82 | 2.2 |
| Evaluate life cycle of weed plants to determine proper control procedures | 47 | 2.0 |
| Mean Rating | 71.2 | 2.2 |
| **Constructing and Maintaining Forage Operations Buildings and Structures** | | |
| Apply wood and metal preservatives | 82 | 2.1 |
| Clean and oil electric motors on structures | 88 | 2.4 |
| Build and remove concrete forms | 82 | 2.1 |
| Determine cost of repairs | 88 | 2.1 |
| Develop bill of materials needed for repairs | 76 | 1.9 |
| Repair and hang gates and doors | 94 | 2.4 |
| Install electric motors | 88 | 2.1 |
| Lay concrete blocks | 29 | 2.0 |
| Mix, pour, finish, and cure concrete | 64 | 2.1 |
| Read and interpret blueprints | 41 | 1.7 |
| Install and repair bracing in buildings and structures | 82 | 2.1 |
| Repair electrical cords and broken wires | 82 | 2.4 |
| Repair minor leaks in roof of buildings | 94 | 2.2 |
| Replace belts and pulleys | 94 | 2.3 |
| Reset circuit breakers | 94 | 2.5 |
| Install and replace electrical switches | 82 | 2.4 |
| Replace fuses | 94 | 2.5 |
| Replace lighting fixtures | 76 | 2.2 |
| Replace valves in water system | 88 | 2.4 |
| Replace or repair faucets | 82 | 2.3 |
| Replace water pipe | 82 | 2.0 |
| Replace window panes | 82 | 2.1 |
| Wire simple electrical circuit | 88 | 2.2 |
| Construct and repair fences and gates | 94 | 2.4 |
| Install and repair wood siding on buildings | 94 | 2.3 |

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Repair metal structures with arc or oxy-acetylene welder | 70 | 2.2 |
| Mean Rating | 81.2 | 2.2 |
| **Assembling, Adjusting, and Installing Forage Operations Equipment** | | |
| Adjust belts on equipment | 94 | 2.6 |
| Adjust chains on equipment | 94 | 2.6 |
| Adjust controls on equipment | 88 | 2.5 |
| Adjust safety shields on equipment | 94 | 2.5 |
| Check for missing equipment parts or hardware | 94 | 2.4 |
| Follow written assembly instructions | 76 | 2.0 |
| Identify hardware | 82 | 2.0 |
| Inspect assembled equipment for operating defects | 82 | 2.2 |
| Install equipment and structures in appropriate places | 70 | 2.0 |
| Interpret assembly diagrams | 58 | 2.0 |
| Interpret assembly instructions | 64 | 2.0 |
| Use proper tools and equipment to assemble and install equipment and structures | 70 | 2.2 |
| Mean Rating | 80.5 | 2.3 |
| **Establishing Forage Crops** | | |
| Calibrate seeding equipment | 88 | 2.6 |
| Clip companion crop grain stubble | 82 | 1.7 |
| Compact seedbed after planting | 52 | 1.9 |
| Determine if pure or mixed forage stands should be established | 82 | 2.2 |
| Determine seeding rate | 88 | 2.5 |
| Determine when to graze new forage seedings | 82 | 2.3 |
| Determine when to seed | 88 | 2.5 |
| Evaluate advantages and disadvantages of various varieties | 70 | 2.2 |
| Identify forage plants | 76 | 2.1 |
| Identify forage seeds | 76 | 2.1 |
| Identify problems related to seeding failures | 76 | 2.4 |
| Inoculate legume seeds | 76 | 2.3 |

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Interpret information on seed tags | 82 | 2.3 |
| Mulch after seeding | 23 | 1.6 |
| Operate seeding equipment | 94 | 2.5 |
| Prepare seedbed | 94 | 2.6 |
| Remove combined straw | 76 | 2.2 |
| Select proper seeding method(s) | 82 | 2.4 |
| Select companion crops for forages | 88 | 2.4 |
| Select variety to plant | 82 | 2.4 |
| Determine proper planting depth | 88 | 2.5 |
| Mean Rating | 78.3 | 2.3 |
| **Marketing and Shipping Forage Crops** | | |
| Calculate expected returns and profits on sales | 35 | 1.6 |
| Classify forage for market purposes | 23 | 1.5 |
| Determine feasibility of feeding or selling forage | 47 | 1.8 |
| Determine feasibility of participating in forage sales contracts with buyers | 29 | 1.5 |
| Evaluate influence forage quality has on value | 47 | 1.8 |
| Inspect forages for color, maturity, foreign matter, and leafiness | 64 | 1.8 |
| Load forage | 76 | 1.9 |
| Prepare carriers for hauling forage crops | 70 | 2.0 |
| Select markets | 41 | 1.8 |
| Prepare advertising announcements for sale of forage | 23 | 1.6 |
| Mean Rating | 45.5 | 1.6 |
| **Harvesting Forage Crops** | | |
| Cut forages for green chop feeding | 23 | 1.7 |
| Cut forages for hay | 88 | 2.3 |
| Cut forages for silage | 70 | 2.3 |
| Determine amount of acreage to cut at one time | 94 | 2.5 |
| Determine latest dates for harvesting | 76 | 2.2 |
| Determine number of cuttings to be harvested | 76 | 2.1 |
| Determine stage of maturity | 88 | 2.3 |
| Determine when hay is "field cured" and ready to bale | 88 | 2.7 |
| Determine when to cut hay for baling | 88 | 2.5 |

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

| TASK STATEMENTS | Percent Performing | Average Level of Importance |
|---|---|---|
| Determine when to cut for silage | 76 | 2.4 |
| Determine when to rake hay | 58 | 2.0 |
| Evaluate influence of continued early cutting on longevity of stand | 64 | 1.9 |
| Evaluate influence stage of maturity has on quality of forage | 82 | 2.5 |
| Follow weather forecasts | 82 | 2.5 |
| Mean Rating | 75.2 | 2.3 |
| Storing Forage Crops | | |
| Control temperature and humidity in hay storage areas | 11 | 1.6 |
| Determine moisture content of hay | 64 | 2.1 |
| Determine moisture content of silage | 64 | 2.0 |
| Determine safe moisture content for storing baled hay | 76 | 2.5 |
| Estimate amount of hay or silage in storage | 82 | 1.9 |
| Estimate amount of storage space needed | 70 | 1.9 |
| Evaluate influence moisture has on quality of forage | 64 | 2.0 |
| Fill silo | 76 | 2.0 |
| Identify storage problems that might occur | 70 | 2.1 |
| Load and unload hay bales | 94 | 2.2 |
| Remove damaged hay from storage | 29 | 1.6 |
| Remove damaged silage from storage | 41 | 1.8 |
| Stack hay bales | 88 | 1.9 |
| Supply additives as silage is blown into silo | 29 | 1.6 |
| Unload silage wagons | 82 | 2.1 |
| Use hay dryer and fans | 11 | 1.3 |
| Use proper types of storage facilities | 76 | 2.2 |
| Mean Rating | 60.4 | 1.9 |